

CLAIMS." Please replace claim 9 and add new claims 20-21 as shown in the document entitled "CLEAN COPY OF THE NEW AND AMENDED CLAIMS."

### **REMARKS**

Applicants respectfully request reconsideration of this application and reconsideration of the Office Action dated December 20, 2000 (Paper No. 6). Upon entry of this Amendment, claims 1-19 and new claims 20-21 will be pending in this application. The amendments to the claims are fully supported by the specification and claims as originally filed. No new matter is incorporated by this amendment.

### **Claim Objections**

Claims 9 and 10 are objected to for being in improper multiple dependent form.

Applicant respectfully submits that claim has been amended so that it now only depends from claim 20. Therefore, reconsideration and withdrawal are respectfully requested.

### **Rejections Under 35 U.S.C. § 103**

Claims 1-5 and 11-14 are rejected under 35 U.S.C. 103(a) as being obvious based on the Lavin patent (U.S. Pat. No. 6,020,281). Applicant respectfully traverses this rejection.

The Office Action asserts that the Lavin reference discloses drying difluoromethane with a 3A type molecular sieve at the recited temperature. The Office Action concedes that Lavin fails to disclose the operating pressure and water content. However, the Office Action asserts that the exact operating a pressure and water content are not seen to materially effect the overall results and are obvious.

Applicant respectfully traverses the characterization of the Lavin disclosure, as the claimed invention is drawn to a continuous process, with specifically delineated process steps that are neither taught nor suggested by Lavin, and are not addressed in the rejection.

Applicant's claims are drawn to a continuous process, not a batch process. All the process limitations must be considered in how they affect the continuous process of drying F32. To establish a prima facie case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See MPEP 2143.03. The claimed invention is a process claim which is:

- 1) conducted in a continuous stream; and
- 2) at specified temperatures and pressures.

The dependent claims contain myriad elements that further define the invention in terms of a continuous process. As the prior art is strictly limited to batch-wise processing, the references could not possibly suggest these limitations drawn to modifying a continuous process. In the dependent claims it is further specified that:

- 3) the stream of F32 have a particular water content;
- 4) that the sieve feed stock is regenerated;
- 5) the regeneration is conducted in a stepwise fashion at controlled temperatures and pressures; and
- 6) that the continuous streams are redirected through multiple chambers to allow for stepwise regeneration of the sieve fee stock.

None of the limitations above are disclosed in the prior art of record.

By way of contrast, Lavin is limited to disclosing a batch process. All the examples are directed to a process occurring within a stainless steel bomb which precludes continuous processing, and is limited to batch-wise processing.

Applicant respectfully submits, and the Office Action agrees, that the Lavin reference does not teach or fairly suggest the claimed pressure. Applicant has found that employing the correct pressure is one of many features that distinguishes the claimed invention from the prior art.

The instant specification beginning at p. 7, line 27 teaches that drying the stream of wet F32 should be done at a pressure of between 0.6 and 25 atm, preferably between 0.8 and 17 atm. The specification beginning at page 8, line 5 further teaches that when the stream is to be dried as a liquid, the process should be performed at a pressure of between 9 and 25 atm, preferably between 12 and 17 atm. In addition, when the stream is to be dried as a gas, the process should be performed at a pressure of between 6 and 10 atm, preferably between 12 and 5 atm. Therefore, it is clear from the teachings of the specification that Applicant has selected specific pressures based on the type of stream that is to be dried. All of these limitations have been carefully developed within the context of a continuous process of drying.

In contrast, Lavin gives no teaching or suggestion to employ the pressure taught by Applicant in a process for drying a stream of F32. Applicant has found that the claimed invention allows for employing A type sieves to dry F32 continuously. There is no teaching or suggestion in the Lavin reference that their sieve can be used to dry F32 continuously. Furthermore, there is nothing in the art of record which shows that the claimed pressure would be obvious.

Applicants respectfully submit that the outstanding rejection is overcome. Reconsideration and withdrawal are respectfully requested.

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Claims 6-8 and 15-19 are rejected under 35 U.S.C. 103(a) as obvious based on Lavin in combination with the Sherman patent (U.S. Pat. No. 4,663,052). Applicant respectfully traverses the rejection.

The Office Action concedes that the Lavin reference fails to teach the regeneration treatment. The Office Action asserts that the Sherman reference teaches regenerating a molecular sieve which has been used to dry halogenated methane. The Office Action concludes it would have been obvious to one of ordinary skill in the art to regenerate the sieve of the Lavin reference by the process taught by the Sherman reference.

The deficiencies of the Lavin reference are described above. Furthermore, Applicant respectfully submit that the Sherman reference does not cure the deficiencies of the Lavin reference.

The Sherman reference is concerned with drying acidic streams and does not teach or fairly suggest drying a wet F32 stream. Therefore, there is no motivation in the art of record to combine the references as suggested by the Office Action. Furthermore, in varying the stream for processing to include other materials, such as the acid suggested, the molecular sieve will be altered which inhibits its regeneration capacity. See the specification at page 6. Applicant respectfully submits that the rejection is improper.

Applicants respectfully submit that the outstanding rejection is overcome. Reconsideration and withdrawal are respectfully requested.

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Applicant again respectfully submits that this Amendment and the above remarks overcome all of the outstanding rejections in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited.

If any fees are due in connection with the filing of this Amendment, such as fees under 37 C.F.R. §§ 1.16 or 1.17, please charge the fees to our Deposit Account No. 02-4300; Order No. 033808.107. If an extension of time under 37 C.F.R. § 1.136 is necessary that is not accounted for in the papers filed herewith, such an extension is requested. The extension fee also should be charged to Deposit Account No. 02-4300; Order No. 033808.107.

Respectfully submitted,

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**MARKED-UP VERSION OF THE PREVIOUS CLAIMS**

1. (Twice Amended) A [P]process for drying wet F32, which comprises placing a stream of the said F32 in continuous contact with a feed stock of a composition comprising a molecular sieve selected from a 3A, 4A or 5A type sieve, at a temperature of between 5 and 78°C, and at a pressure of between 0.6 and 25 atm[,].

2. (Twice Amended) The [P]process according to [C]claim 1, wherein the stream of F32 to be dried is a stream of gas, and the pressure is between 0.6 and 10 atm.

3. (Twice Amended) The [P]process according to [C]claim 1, wherein the stream of F32 comprises a water content of less than 10,000 ppm.

4. (Twice Amended) The [P]process according to [C]claim 1, wherein the wet F32 is placed in contact with the sieve feed stock in a column located downstream of a plant for manufacturing F32.

5. (Twice Amended) The [P]process according to [C]claim 1, wherein the molecular sieve used is a 3A type sieve.

6. (Twice Amended) The [P]process according to [C]claim 1, wherein the sieve feed stock is regenerated by the process which consists in heating the feed stock to a temperature between 120°C and 300°C, at an absolute pressure of less than 100mm Hg.

7. (Twice Amended) The [P]process according to [C]claim 1, wherein the sieve feed stock is regenerated by the process which consists in passing a stream of an inert gas, optionally helium, over the feed stock, at a pressure at about atmospheric pressure, by working firstly:

(i) at a temperature [at least] between 70°C and 170°C, for the time required to remove at least 80%, of the initial amount of F32 absorbed in the feed stock, and then

(ii) at another temperature [of] between 180°C and 300°C, for the time required to remove at least 90%, of the initial amount of water absorbed in the feed stock.

8. (Twice Amended) The [P]process according to [C]claim 7, wherein step (i) is carried out by first working:

(i1) at first temperature [of] between 70°C and 130°C, for the time required to remove at least 60% of the initial amount of F32 absorbed, and then

(i2) at a second temperature [of] between 130°C and 170°C, for the time required to remove at least 80%, of the initial amount of F32 absorbed.

9. (Twice Amended) The [P]process according to [C]claim [6] 20, wherein the regeneration treatment for the sieve feed stock is carried out in the same column [as that defined in Claim 4] that is used to contact the wet F32.

10. (Twice Amended) The [P]rocess according to [C]claim 9, wherein [it] said process is carried out in at least two columns in parallel, one running in [the] a phase for drying wet F32, [the other] and another running in [the] a phase for regenerating a saturated molecular sieve feed stock.
11. (Amended) The [P]rocess according to [C]claim 1, wherein the temperature is room temperature.
12. (Amended) The [P]rocess according to [C]claim 1, wherein the pressure is between 0.8 and 17 atm.
13. (Amended) The [P]rocess according to [C]claim 2, wherein the pressure is between 0.8 and 5 atm.
14. (Amended) The [P]rocess according to [C]claim 3, wherein the water content is less than 6000 ppm.
15. (Amended) The [P]rocess according to [C]claim 6, wherein the temperature is between 150°C and 250°C and the pressure is less than 80 mm Hg.



16. (Amended) The [P]process according to [C]claim 7, wherein the temperature (i) is between 80°C and 165°C and at least 90% of the initial amount of F32 absorbed in the feed stock is removed.

17. (Amended) The [P]process according to [C]claim 7, wherein the temperature (ii) is between 190°C and 250°C and at least 95% of the initial amount of water absorbed in the feed stock is removed.

18. (Amended) The [P]process according to [C]claim 8, wherein the temperature (i1) is between 100°C and 125°C and at least 70% of the initial amount of F32 absorbed is removed.

19. (Amended) The [P]process according to [C]claim 8, wherein the temperature (i2) is between 145°C and 165°C and at least 90% of the initial amount of F32 absorbed is removed.